

REMARKS

Upon entry of this amendment, claims 1 and 3-30 will be pending, with claims 1, 12, 16, 21, 23, and 24 being independent. The above amendments to the claims were made to more distinctly claim the Applicant's invention. The amendments to claim 1 and new claim 21 were added to more distinctly claim the identity, functionality and ratio of specific carboxylic acids and amines used for compounds I and II of the present invention. New claims 12-20 were added to define the corresponding process of making the polymer of the present invention.

Support for the above amended and added claims can be found throughout the specification. For example, the ratios added to parts 3 (a) and (b) of claim 1 can be found, for example, in figures 1 and 2. Likewise, support for new claims 16 – 19 can be found on page 6, line 29 through page 7 line 6, and page 8, lines 9-20.

The claims stand rejected under 35 USC §112, second paragraph as allegedly being indefinite. The Applicant submits that the above claims, as amended, are in full compliance with §112. For example, proper Markush language has been used in claims 5 and 6; and the Examiner's suggestions regarding claims 10 and 11 have been employed. Accordingly, the Applicant respectfully requests reconsideration and withdrawal of this rejection.

The claims also stand rejected under 35 USC §102(b) as allegedly being anticipated by Schmid *et al* (EPO 0 345 648 B1). Applicants traverse this rejection for at least the following reasons.

The Examiner notes that EPO '648:

"discloses a thermoplastically processible polyamidesin the following composition:

- a) 5 to 150 $\mu\text{mol/g}$ polymer of at least trifunctional monomer.....
- b) 2 to 100 $\mu\text{mol/g}$ polymer of at least bifunctional monomer.....
and optionally
- c) 5 to 450 $\mu\text{mol/g}$ polymer of a monomer which is monofunctional in normal polycondensation, a molar ratio of component a) to component b) [of at least 1 being observed when component a) is trifunctional and component b)]is bifunctional and a molar ratio of at least 2 being observed when component a) and component b) are trifunctional; which anticipates the invention. (Paper No. 6, pages 5-6) (accidental omission reported in brackets)."

However, the compositions of the present invention as claimed, require the ratio of trifunctional to bifunctional compounds is less than one, and where both amine and carboxylic acid are trifunctional, the ratio is less than 2. Furthermore, the presently claimed compositions of the invention is directed towards cases where compounds I and II have a functionality not higher than 3. This fact, when coupled with the defined ratio of compound I to II, places the presently claimed embodiment free of the prior art.

Likewise, EP '648 does not define a process which involves selecting the above claimed AB monomers, and compounds I and II to obtain an intrinsically gel-free polymer via the defined formulas or regions of intrinsically non-gelling compositions according to figures 1 – 9 (e.g., the non-shaded regions).

Accordingly, the present invention is not anticipated by EP '648, and the Applicant respectfully requests that the Examiner reconsider and withdrawal this rejection.

CONCLUSION

As all the objections and rejections noted in the Office Action have been addressed, Applicant request reconsideration of the present application and submit that this application is in condition for allowance. A timely Notice to that effect is respectfully requested. Should questions relating to patentability remain, the Examiner is invited to contact the undersigned to discuss the same.

Respectfully submitted,
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APPENDIX

I. VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) An intrinsically gel-free, randomly branched polyamide comprising at least units derived from:

1. AB monomers, which monomers have both a carboxylic group (A) and an amine group (B),
2. at least one compound I, being a carboxylic acid (A_v) [having a functionality $v \geq 2$] or an amine (B_w), said at least one compound having a functionality w or v is [\leq] 2 or 3,
3. at least one compound II, being a carboxylic acid (A_v) [having a functionality $v \geq 3$] or an amine (B_w) having a functionality w or v equal to [\geq] 3, compound II being a carboxylic acid if compound I is an amine or compound II being an amine if compound I is a carboxylic acid [if compound I is an amine or compound II being an amine if compound I is a carboxylic acid, characterized in that] wherein
 - a) the molar ratio of compound II to compound I is less than 1 where compound I is bifunctional;
 - b) the molar ratio of compound II to compound I is less than 2 when compound I is trifunctional
 - c) the amounts of units derived from all carboxylic acids and amines in the polyamide satisfy formula

$$P < 1 / [(F_A - 1) (F_B - 1)] \quad (1)$$

where

$$P = [\sum (n_i f_i)]_X / [\sum (n_i f_i)]_Y \quad (2)$$

where $P \leq 1$ and either $X = A$ and $Y = B$, or $X = B$ and $Y = A$, and

$$F_x = \sum (n_i f_i^2) / \sum (n_i f_i) \quad (3)$$

for, respectively, all carboxylic acids (X = A) and all amines (X = B), where f_i is the functionality of either the carboxylic acid ($f_i = v_i$) or amine ($f_i = w_i$), n_i being the number of moles of the carboxylic acid or amine and the summation involving all units derived from carboxylic acids and amines in the polyamide [except : **randomly branched polyamides comprising units derived from carboxylic acids (A_v) having a functionality v and amines (B_w) having a functionality w, in the following amounts (in $\mu\text{mol/g}$ of polyamide):**

- **B₁ (20), B₃ (60) and A₂ (20)**
- **B₁ (10), B₃ (60) and A₂ (30)**
- **B₁ (120), B₂ (30) and A₃ (60)**
- **B₁ (150), B₂ (30) and A₃ (70)**
- **B₁ (170), B₃ (30), A₂ (60) and A₃ (60)** .

3. (Amended) The polyamide according to claim 1, wherein the functionality of [wherein] compound I is 2 [**and the functionality of compound II is 3**].

4. (Reiterated) The polyamide according to claim 3, wherein at least a unit derived from monofunctional carboxylic acid or amine is present.

5. (Amended) The polyamide according to claim 3, wherein compound I is terephthalic acid [**and**] or 1, 6-hexa-methylene diamine.

6. (Amended) The polyamide according to claim 3, wherein compound II is 1, 3, 5-tris (caproic acid) – melamine, trimesic acid [**and**] or bis (hexamethylene triamine).

8. (Amended) The polyamide according to claim 7, wherein the lactam is [§] δ -caprolactam.

9. (Amended) A process for the preparation of a polyamide film[wherein]
comprising forming a film from a polyamide according to claim 1 [is chosen as polyamide].

10. (Amended) A fiber, film, foam or molded article [obtained] formed from
polyamide according to claim 1.

11. (Amended) A [flat] film [obtained from] formed from a polyamide
according to claim 1.